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NORTHROP AIRCRAFT, INC.
HAWTHORNE, CALIFORNIA

Tellum NAI-56-204

PHASE III PRELIMINARY DEVELOPMENT PLAN
SYSTEM 118P RECONNAISSANCE PROGRAM
(HAE[illegible])

15 April 1956 S.O. 60066

SECRET

NORTHROP AIRCRAFT, INC.

HAWTHORNE, CALIFORNIA

(14)

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(6) PHASE III PRELIMINARY DEVELOPMENT PLAN,
SYSTEM 118P RECONNAISSANCE PROGRAM
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(11) 1 May 56,

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REVISIONS

CHG. NO.	DATE	ENGR.	PAGES AFFECTED	REMARKS
A	5-1-56		ii and 1	Revised
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SYSTEM 118P PHASE II½ RECONNAISSANCE AIRCRAFT
NORTHROP MODEL N-165

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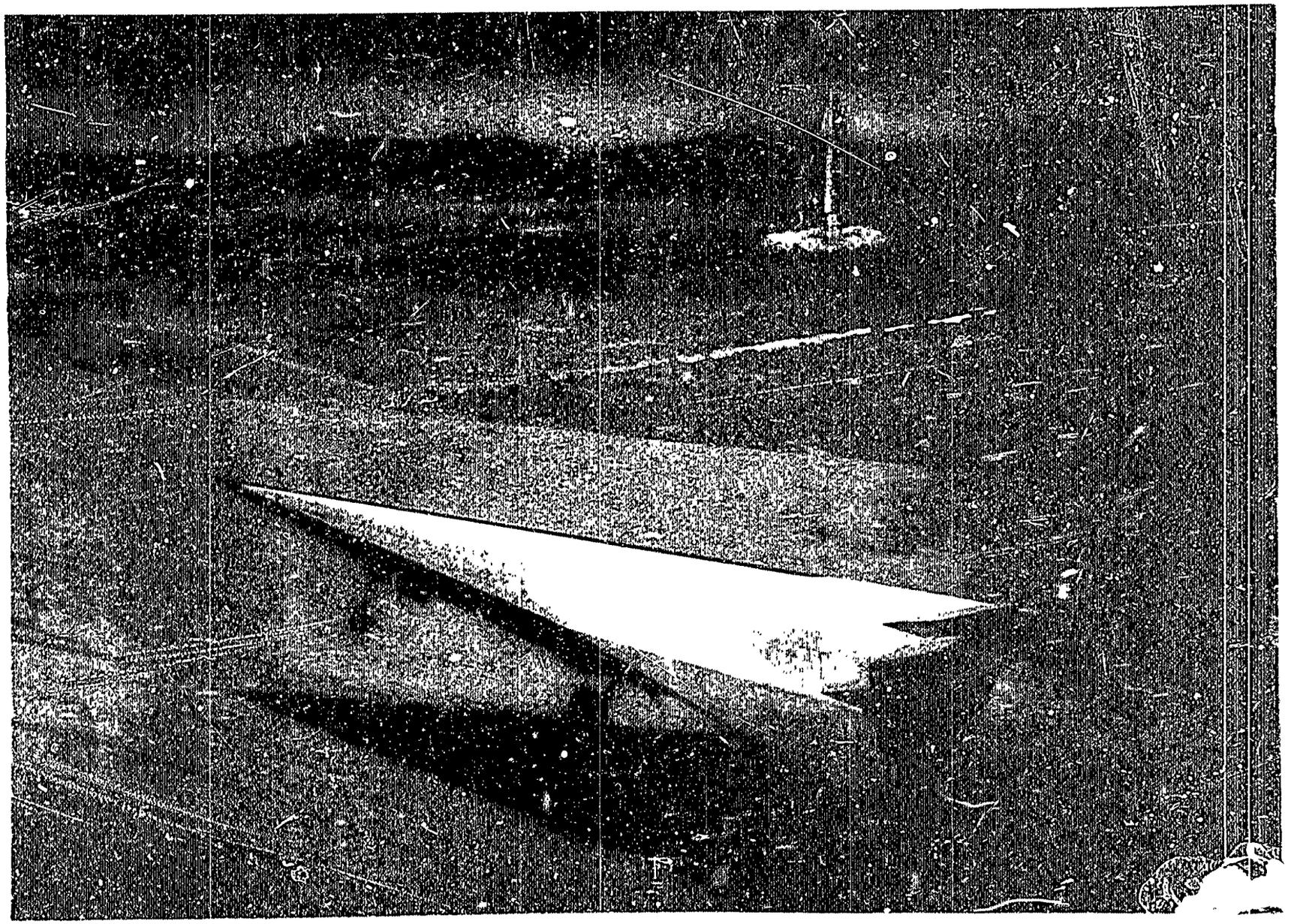

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SYSTEM 118P PHASE III RECONNAISSANCE AIRCRAFT
NORTHROP MODEL N-173

FOREWORD

This is one of a series of reports prepared by Northrop Aircraft, Inc., which present the results of a seven-month study program to determine the feasibility of, and to develop preliminary Phase II½ and III designs of, the 118P Reconnaissance System (HARP). These reports are prepared in accordance with provisions of Air Force Contract AF33(600)-31244 under the administration of the ARDC Project Office RDZSBA.

SUMMARY

The salient points of the Phase III preliminary development plan include:

1. Contractual go-ahead to be received by 1 July 1956.
2. Completion of first article low speed test glider within 40 months from contract date.
3. First flight of low speed test glider in the thirtieth month.
4. First unmanned system test flight in the fiftieth month.
5. Completion of first article manned system for flight test within 66 months from contract date.
6. First manned system flight in the sixty-eighth month.
7. Completion of manned system flight tests in the ninety-second month.
8. Delivery of the first complete OST vehicle in the ninetieth month.
9. Delivery of sixth operational system in 100 months.
10. Delivery of the twentieth operational system in the one hundred and fifth month.

118P PHASE III SYSTEMS DEVELOPMENT PLAN

NORTHROP MODEL N-173

A proposed plan is submitted in Figure 1, delineating the scheduling necessary to provide an operational unit of 20 Northrop Aircraft, Inc., N-173 weapon systems, supporting components, and subsystems, in a 105-month period beginning July 1956 and ending March 1965.

The plan is divided into three major phases:

(a) Preliminary Design and Mock-up

(b) Design, Fabrication, and Flight Testing of Test Vehicles

1. Manned Glider
2. Unmanned System
3. Manned System

(c) Design and Fabrication of OST and Production Vehicles

Preliminary Design and Mock-up

Preliminary design studies and numerous research programs will be performed in the first 20-month period following go-ahead. Glider configuration mock-up design will begin 11 months following go-ahead, and the glider mock-up will be completed in 6 months (October 1957). Mock-up system installation and ground support equipment will follow completion of configuration mock-up and continue until December 1959.

Design and Fabrication of Test Vehicles

Design of the low speed test glider will begin 22 months after go-ahead, November 1957, and continue for a 16-month period, ending February 1959. Fabrication of the first article will be completed in October 1959, and the second article will be completed in February 1960. Completion of the first article will be 44 months from go-ahead, and the second article 48 months from go-ahead.

The Contractor proposes a three-phase flight test program. This will consist of (a) manned glider flight tests, (b) unmanned system flight tests, and (c) manned system flight tests. Prior to initiation of the manned glider flight tests, tests will be made on a series of small-scale models. The purpose of these tests principally is to obtain aerodynamic and structural data on the glider stage throughout the speed range. For these tests six flutter models dynamically similar to the glider are proposed, and fifteen models are proposed to test materials and to ascertain the temperatures involved. A number (possibly 20) of aerodynamic test models will be required for stability and control, and lift/drag tests.

Two manned full scale gliders will be subjected to low speed proof tests. These tests will begin November 1959; approximately 50 flights are scheduled for the 11-month test period.

Ten unmanned hypersonic glider systems are proposed for proving the capability of the airframe, stabilization, and flight control systems to function satisfactorily throughout the speed-altitude range. A minimum of ten flights is indicated. More flights are desirable, provided some of the vehicles are recovered. The series of tests will begin May 1960. The test period will cover the ensuing 22 months, ending February 1962.

At least 100 hours of flight testing (approximately 150 flights) on the complete manned system are proposed, in which the ultimate speeds and altitudes will be approached in gradual stages. Ten complete systems will be required. The program will begin November 1961, and the first flight is programmed for May 1962. The tests will encompass a 28-month period, ending February 1964.

Test Facilities

The Contractor proposes that the small-scale model tests be run at a government facility, such as Holloman AFB or possibly the NACA Wallop's Island facility.

Manned low speed glider tests are proposed for Edwards AFB. A bombardment aircraft, B-50 or B-36, will be required for modifications necessary to carry the gliders aloft and drop them in a manner similar to the X-1 launchings.

Patrick AFB will be needed for testing the unmanned hypersonic system. The range of the vehicle is such that recovery might be effected if a suitable landing facility, with automatic landing provisions, were located approximately 3500 to 4500 miles from the launch site.

Flight testing of the manned system will probably require that initial testing to moderate supersonic or low hypersonic speeds be conducted at or from Edwards AFB, or between another launch site and Edwards (similar to the X-15 program). Final tests to full altitudes and speeds could be conducted with launchings at Patrick AFB and recovery at Edwards. Facilities across the United States would also be available for testing the reconnaissance and navigation subsystems while enroute.

The complete first article of the manned system will be available for flight test December 1961, 66 months following contractual go-ahead.

Design and Fabrication of OST and Production Vehicles

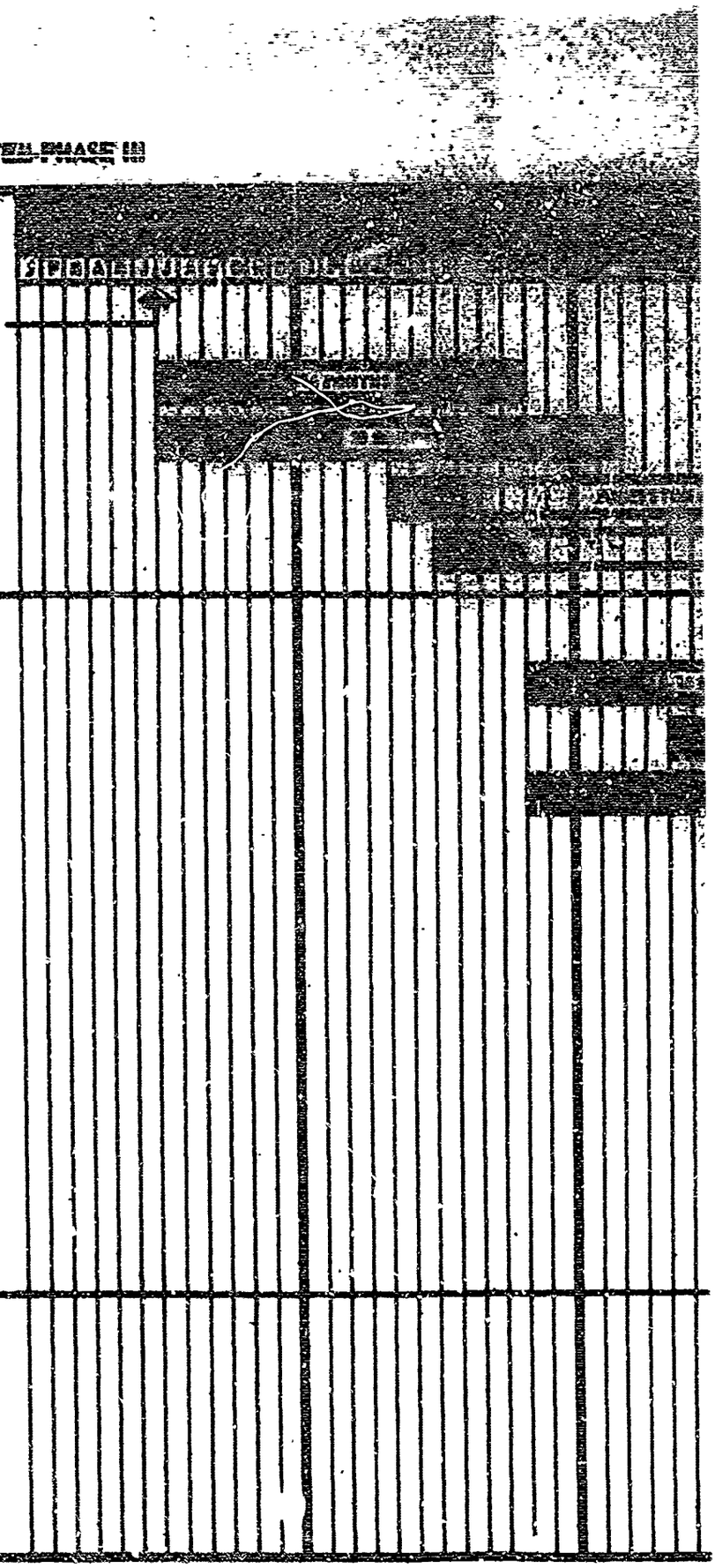
Prototype ground support equipment design will be initiated 17 months after go-ahead, November 1957, and will be completed in June 1959. Fabrication of first article prototype ground support equipment will be initiated 13 months after design effort begins, November 1958, and will be completed in April 1960.

Operational ground support equipment fabrication and assembly will begin in January 1962. Operational GSE fabrication will be completed in February 1964. First article of production GSE is scheduled for delivery in October 1963.

Production manned system design will be initiated 61 months after initial go-ahead, November 1961, and will be completed in June 1963.

The complete first article OST vehicle is programmed for delivery 90 months after go-ahead, December 1963. The 20 operational systems, including OST systems, are completed in a 16-month period beginning December 1963 and ending March 1965, 105 months following contractual go-ahead. The sixth operational system will be delivered in October 1964. This will be the tenth production unit.

N-173 PROPOSED DEVELOPMENT PLAN (105 SYSTEM-PHASE III)



PRELIMINARY DESIGN

AIRFRAME AND SUBSYSTEM RESEARCH

MOCK-UP DESIGN

MOCK-UP FABRICATION

FLIGHT TEST VEHICLES

GLIDER DESIGN

FABRICATION AND ASSEMBLY

UNMANNED SYSTEM DESIGN

FABRICATION AND ASSEMBLY

MANNED SYSTEM DESIGN

FABRICATION AND ASSEMBLY

FLIGHT TESTING

GLIDER (B-50 or B-36 DROP)

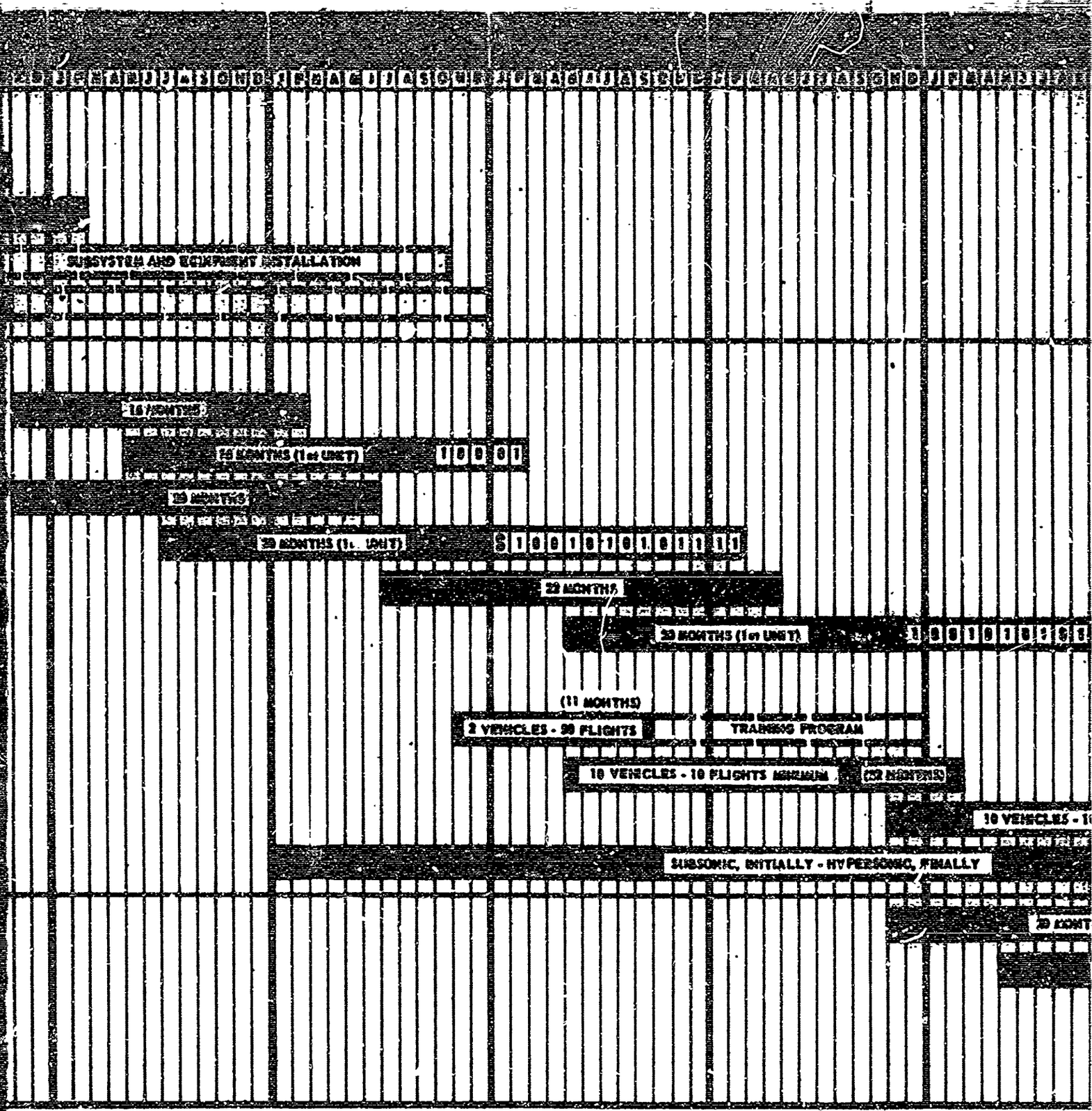
UNMANNED SYSTEMS

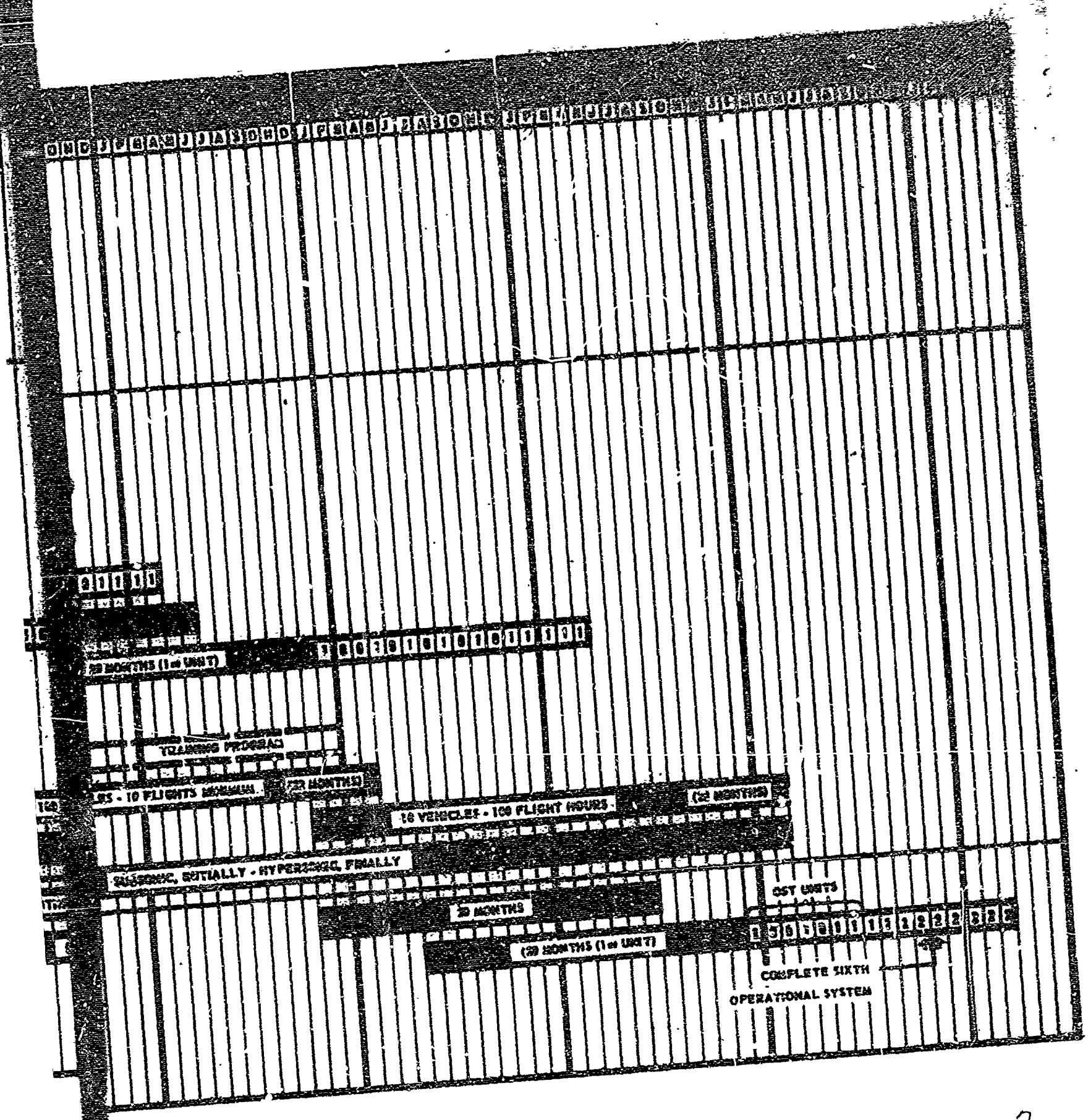
MANNED SYSTEM

EQUIPMENT AND SUBSYSTEMS

PRODUCTION SYSTEM DESIGN

PRODUCTION SYSTEM FABRICATION AND ASSEMBLY


SUBSYSTEM AND EQUIPMENT INSTALLATION
16 MONTHS
26 MONTHS (1st UNIT)
1 0 0 0 1
29 MONTHS
29 MONTHS (1st UNIT)
1 0 0 1 0 1 0 1 0 1 1 1 1
29 MONTHS
29 MONTHS (1st UNIT)
(11 MONTHS)
2 VEHICLES - 50 FLIGHTS
TRAINING PROGRAM
10 VEHICLES - 10 FLIGHTS MINIMUM
(22 MONTHS)
10 VEHICLES - 1
SUBSONIC, INITIALLY - HYPERSONIC, FINALLY


YEARS PROGRAM
(28 MONTHS)
18 VEHICLES - 100 FLIGHT HOURS
(22 MONTHS)
SUBSONIC, SUTIALLY - HYPERSONIC, FINALLY
29 MONTHS
(28 MONTHS (1 st UNIT)
OST UNITS
COMPLETE SIXTH
OPERATIONAL SYSTEM

DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 88TH AIR BASE WING (AFMC)
WRIGHT-PATTERSON AIR FORCE BASE OHIO

3 March 2008

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3810 Communications Blvd
Wright-Patterson AFB OH 45433-7802

Defense Technical Information Center
Attn: Ms. Kelly Akers (DTIC-R)
8725 John J. Kingman Rd, Suite 0944
Ft Belvoir VA 22060-6218

Dear Ms. Akers

This concerns Technical Report AD371458, Phase 3 Preliminary Development Plan. System 118P Reconnaissance Program (HARP), 1 May 1956.

As a result of the processing of WPAFB Freedom of Information Act (FOIA) Control Number 06-651LK, this record has been declassified and determined to be fully releasable to the public.

The document has been reviewed by the Aeronautical Systems Center (ASC) Big Safari Systems Group, 645 AESG/SP, Mr. William M. Zimmerman and it has been determined that the distribution statement should be changed to statement A (publicly releasable). The record is fully releasable to the public.

Point of contact is Lynn Kane at (937) 522-3091.

Sincerely

Lynn Kane

LYNN KANE
Acting Freedom of Information Act Manager
Management Services Branch
Base Information Management Division

Attachments
1. FOIA Request
2. Cover sheet
3. Full Citation
4. Copy of AFMC Form 559